

Bellwork: 11/21/11

Write equation
given $(2, -3)$ and $(4, -3)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad y - y_1 = m(x - x_1)$$

$$\boxed{y = -3} \quad \frac{0 - 3 - (-3)}{2 - 4 - 2}$$

$$y - (-3) = 0(x - 2) \quad m = 0$$

$$y + 3 = 0$$

$$\begin{array}{r} -3 \\ -3 \\ \hline y = -3 \end{array}$$

$$f(x) = 2x - 5$$

$$g(x) = x^2 + 6$$

Find $g(f(x))$

$$g(2x - 5)$$

$$(2x - 5)^2 + 6$$

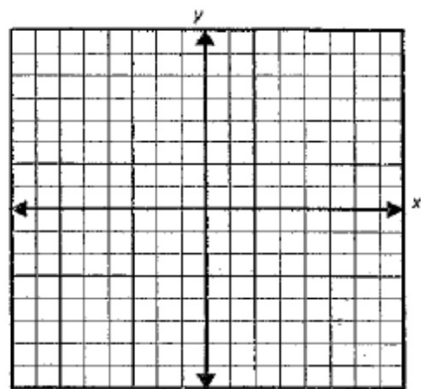
$$(2x - 5)(2x - 5) + 6$$

$$4x^2 - 20x + 25 + 6$$

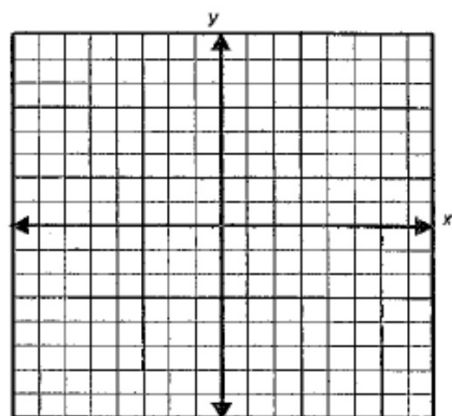
$$4x^2 - 20x + 3$$

Graph the following functions

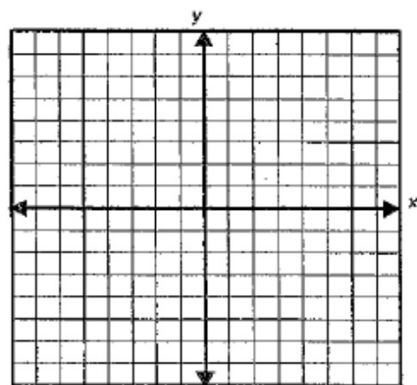
$$1. f(x) = \begin{cases} 2x+1 & \text{if } x < -2 \\ -\frac{1}{2}x-4 & \text{if } -2 \leq x \leq 1 \\ x+6 & \text{if } x > 1 \end{cases}$$



$$2. f(x) = \begin{cases} \frac{3}{5}x + 1 & \text{if } x \leq -5 \\ 4 & \text{if } -5 < x \leq 2 \\ 2x - 2 & \text{if } 2 < x \leq 4 \\ 6 & \text{if } x > 4 \end{cases}$$



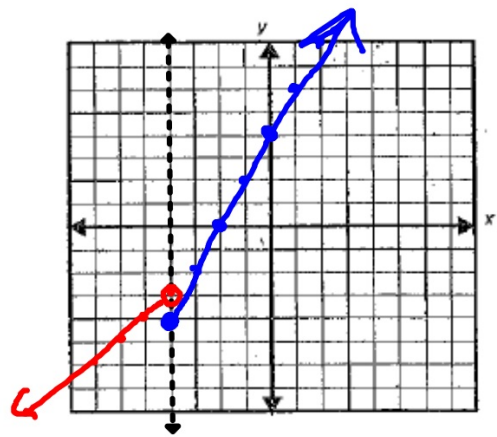
$$3. f(x) = \begin{cases} -3x+5 & \text{if } x \leq -1 \\ 5 & \text{if } -1 < x < 4 \\ \frac{1}{2}x-3 & \text{if } 4 \leq x \leq 6 \end{cases}$$



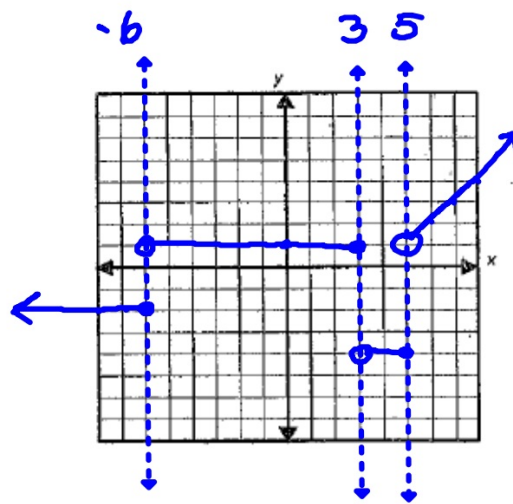
$$4. f(x) = \begin{cases} x+1 & \text{if } x < -4 \\ 2x+4 & \text{if } x \geq -4 \end{cases}$$

$$2x+4$$

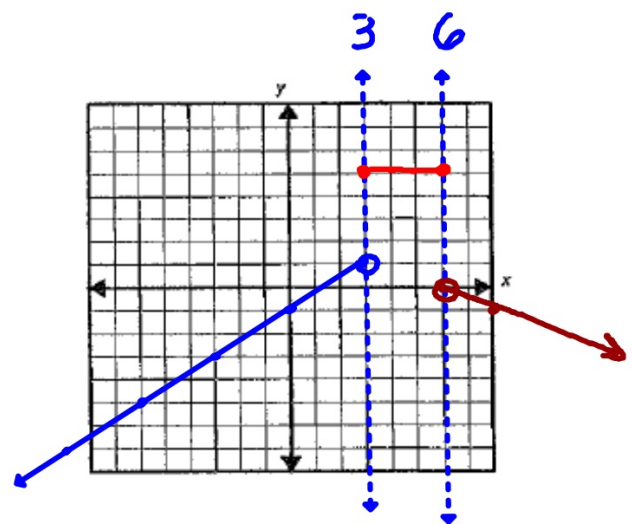
y.int.



$$5. f(x) = \begin{cases} -2 & \text{if } x \leq -6 \\ 1 & \text{if } -6 < x \leq 3 \\ -4 & \text{if } 3 < x \leq 5 \\ x-4 & \text{if } x > 5 \end{cases}$$

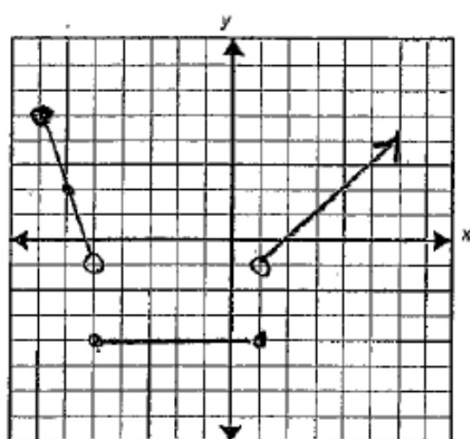


$$6. f(x) = \begin{cases} \frac{2}{3}x - 1 & \text{if } x < 3 \\ 5 & \text{if } 3 \leq x \leq 6 \\ -\frac{1}{2}x + 3 & \text{if } x > 6 \end{cases}$$

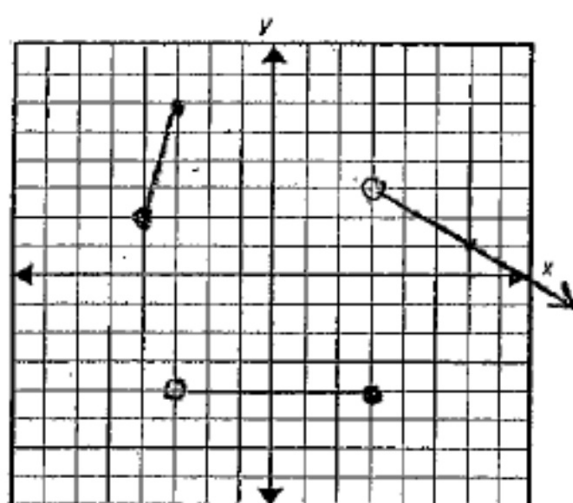


Write the equation of the following piecewise functions.

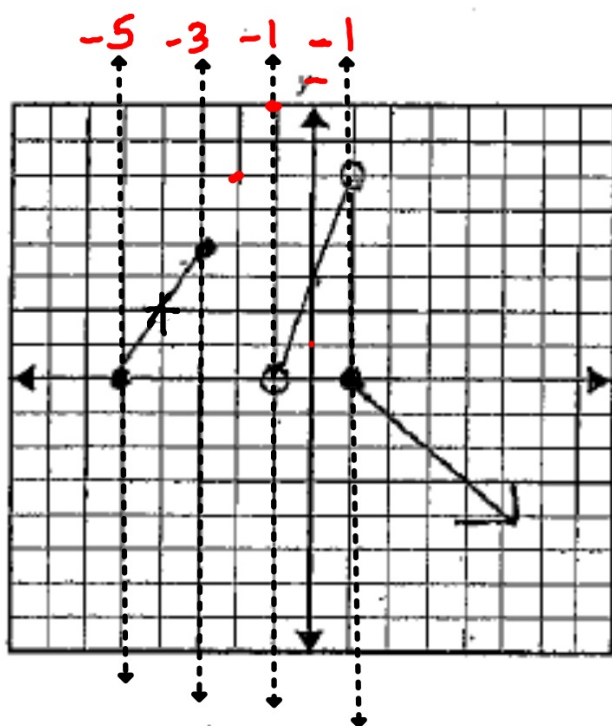
7.



8.



9.



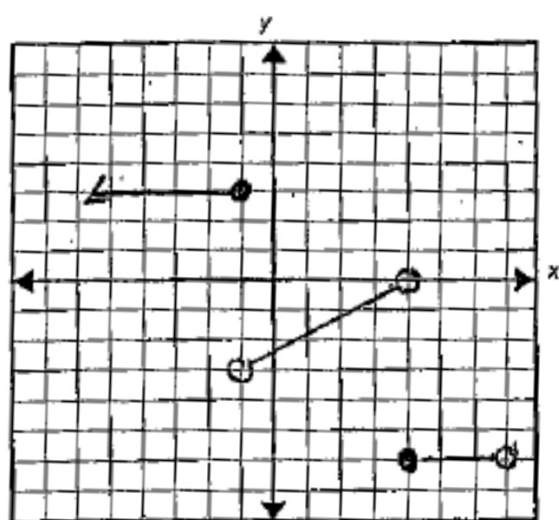
$$2x+10 \text{ if } -5 \leq x < -3$$

$$3x+3 \text{ if } -1 < x < 1$$

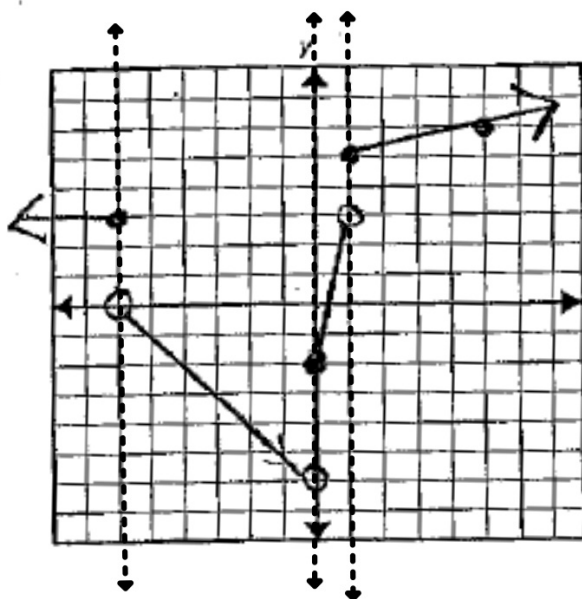
$$-x+1 \text{ if } x \geq 1$$

$$y = mx + b$$

10.



11.



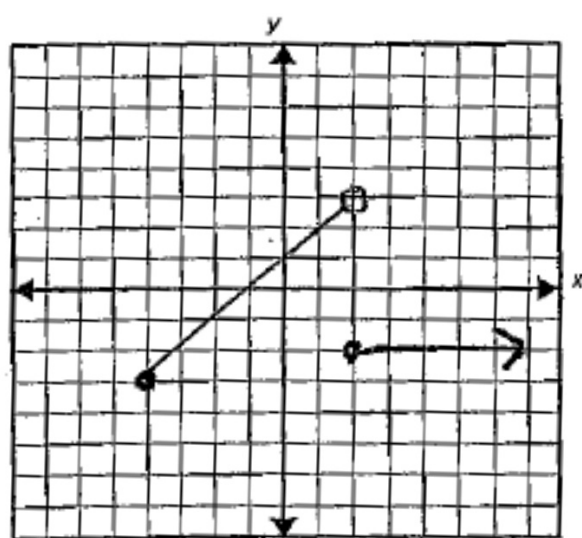
$$3 \text{ if } x \leq -6$$

$$-x-6 \text{ if } -6 < x < 0$$

$$5x-2 \text{ if } 0 \leq x < 1$$

$$\frac{1}{4}x+4 \text{ if } x \geq 1$$

12.



Evaluate the following:

$$f(x) = \begin{cases} 2x - 1 & \text{if } x < 2 \\ -5 & \text{if } 2 \leq x \leq 5 \\ -\frac{3}{2}x - 3 & \text{if } x > 5 \end{cases}$$

13. $f(-2)$

14. $f(0)$

15. $f(10)$

16. $f(4)$

$$f(x) = \begin{cases} \frac{3}{2}x - 10 & \text{if } x \leq -5 \\ -\frac{4}{3} & \text{if } -5 < x \leq 2 \\ 2x + 3 & \text{if } 2 < x \leq 4 \end{cases}$$

17. $f(3)$

18. $f(6)$

19. $f(-6)$

20. $f(1)$